Optimal Determination Of Production Run And Initial Settings Of Process Parameters For A Deteriorating Process

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Summary

This paper presents a generalized model for the optimal determination of a production run and the initial settings of the process mean and process variance for a deteriorating production process. It is assumed that the process deteriorates due to tool wear-out. The probability that the process deterioration starts at a random point in time follows an exponential distribution. Quality loss from the target values is measured using Taguchi's quadratic loss function. The time dependent maintenance cost and the salvage value of the equipment are included. The expressions for determining the optimal process mean and process variance are developed. Numerical examples are provided to demonstrate the application of the proposed model.

References:

1. ALFAWZAN MA, 2001, QUAL RELIAB ENG INT, V17, P459
2. ALSULTAN KS, 1997, INT J PROD ECON, V53, P265
3. ALSULTAN KS, 1997, INT J PROD RES, V35, P1523
4. CHEN SL, 1996, INT J PROD RES, V34, P2051
5. DEDEAKAYOGULLARI I, 1999, INT J PROD RES, V37, P2191
6. DREZNER Z, 1989, IIE TRANS, V21, P66
7. GIBRA IN, 1967, J IND ENG, V18, P35
8. GOLHAR DY, 1992, IIE TRANS, V24, P89
9. JEANG A, 1992, INT J PROD RES, V30, P299
10. KIM CH, 2001, IIE TRANS, V33, P421
11. MAKIS V, 1996, IIE TRANS, V28, P463
12. RAHIM MA, 1988, OMEGA, V16, P347
13. RAHIM MA, 1998, INT J PROD RES, V36, P277

14. RAHIM MA, 2000, J QUALITY MAINTENANC, V6, P192
15. SAMAR KM, 1995, INT J QUAL RELIAH MA, V12, P14
16. STAUNTON RE, 1947, NACA B, V28, P1117

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